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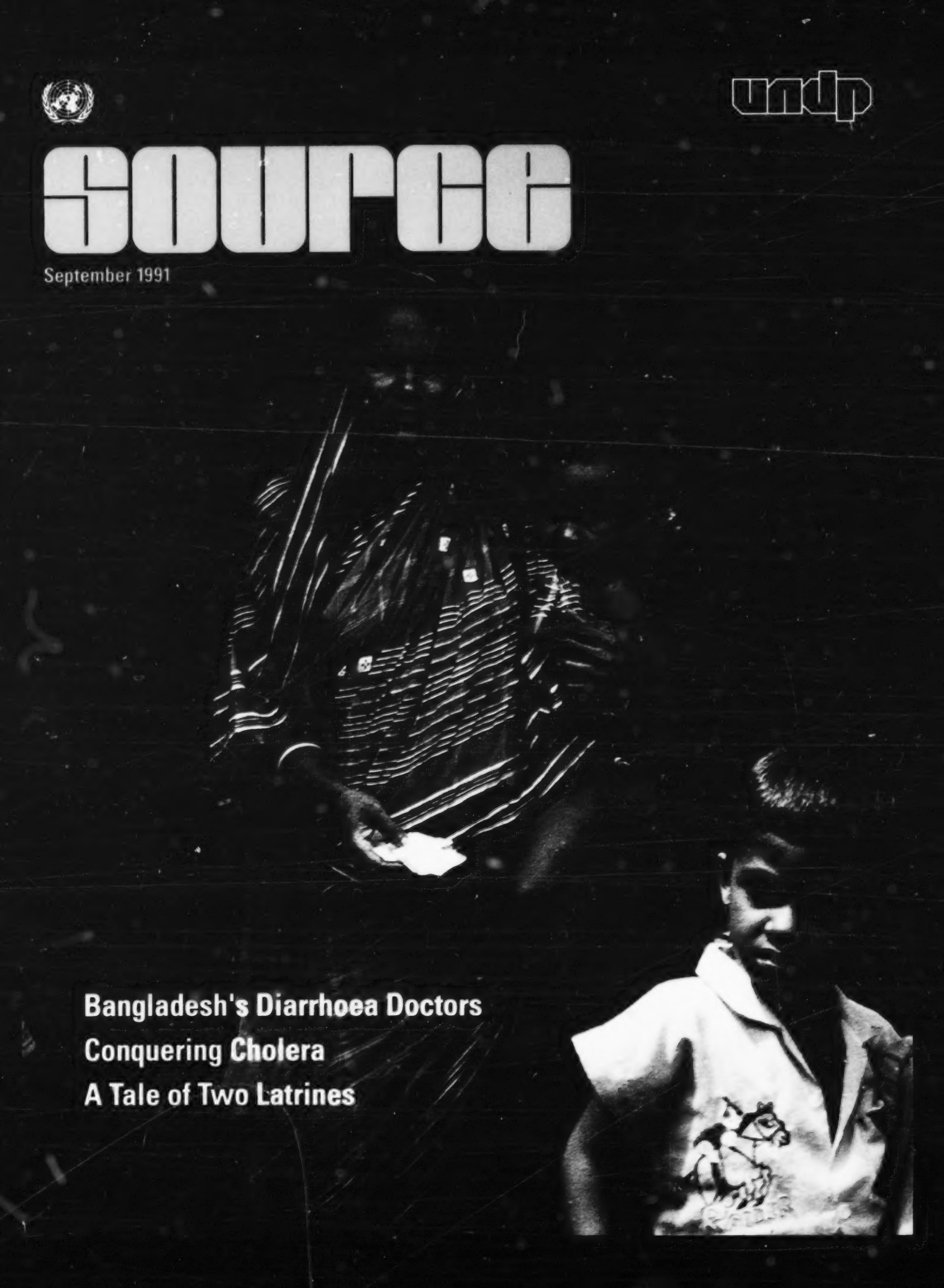

Bangladesh's Diarrhoea Doctors

Conquering Cholera

A Tale of Two Latrines

An Expanded Role for Women

By Siri Melchior-Tellier

Siri Melchior-Tellier

There has been a dramatic shift in the field of women, water and sanitation during the last Decade.

First of all, simpler, low-cost technologies have been developed, which can be operated and maintained at village level. The Afridev pump was specifically designed with the thought that two village women should be able to dismantle it for routine maintenance. This contrasts with heavier earlier models, which needed 10 men and a crane to fix. Such a shift is clearly a precondition for women's effective involvement.

Secondly, approaches for successful involvement of women at community level are now well developed. No longer do field engineers say: "I want women's involvement but they just don't come to my meetings." Numerous small-scale participatory projects have been launched by a variety of organizations with fine results. One challenge for the future is how to repeat these results throughout a country or region. One way is to link improved water and sanitation with other development activities. This means taking a more "integrated" approach. For example, we know that women will often begin to grow vegetables as a side benefit of a water project — very important for both income generation and nutrition. Such spin-offs should be incorporated in the original plan.

Third, over the last Decade, these experiences have led to a realization that we are no longer speaking only of "participation," we are talking about "management." Having women's views on the types of installations they would like is important. However, for them to take responsibility for long-term management would need a different level of "ownership" which comes only from having participated in the planning process, and having made decisions. One level on which this has led to new approaches is that of encouraging the financial involvement of women and their communities.

In Indonesia, the government was so impressed with a rural water supply project involving women that it decided to set aside a portion of its funding to respond to community requests, rather than programming everything centrally. In Lesotho, latrines built by locally trained builders are paid for by households. But close to half of all households are headed by women, who have little or no collateral because they cannot own land. The latrine builders, especially the 25 per cent who are women, have come up with their own solution — a financing scheme that allows for "soft" repayment schedules.

These are just a few examples of the small-scale water and sanitation projects of the last decade with successful women's involvement and

Continued on page 30

Siri Melchior-Tellier, who holds degrees in biology and population studies, has headed UNDP's PROWWESS programme — Promotion of the Role of Women in Water and Environmental Sanitation Services — since 1987.

SOURCE

September 1991

Page 8: Fijians are learning to repair and maintain their own water systems.

Page 24: A latrine that also makes manure has proven popular in Panama.

Cover: Volunteer health workers save lives in Bangladesh. Photo by Emma Robson / UNDP.

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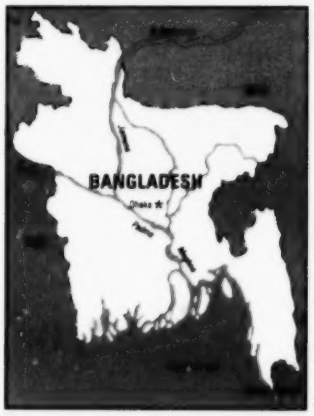
The Life-Saving Mission of Bangladesh's Diarrhoea Doctors

By Emma Robson



Photos by Emma Robson / UNDP

Volunteer Shonabhan works as a health promoter in Dhaka's slums where she lives.

Dr. Aunjuman Ara, in patterned sari, is in charge of the field activities of the Urban Volunteer Programme.

Dhaka, Bangladesh — In a dark, one-room bamboo house in the smoky and decaying Dhaka slums lives Shonabhan, a mother of three young children who has found a purpose amid poverty: helping others improve their health.

Locally she is known as the "Diarrhoea Doctor." Each day, clutching a clipboard and packets of salt and sugar, she winds her way through dirt tracks obstructed by lopsided tin roofs and mounds of coconut husks to make house-to-house visits. Each week for the past eight years she has seen the same 35 families. She asks if the mothers are washing their children's hands regularly, reminds them of the virtues of soap or ash as cleaning agents, urges them to take their unvaccinated children to the nearest immunization clinic, and promotes the use of her little packets of oral rehydration solution (ORS) to stop diarrhoea.

Shonabhan, who like most Bangladeshis uses only her given name, is one of more than 500 volunteers attached to a 10-year-old programme that is demonstrating how preventive health care provided by local, unskilled women, can be a cheap way of saving lives.

The Urban Volunteer Programme (UVP), launched in 1981 with funding from the Ford Foundation and the Governments of Belgium, France and the United States, draws elements from a successful rural primary health care and family-planning system which the Dhaka-based International Centre for Diarrhoeal Diseases Research has been running since late 1977.

The rural programme was one of the developing world's first attempts to show the value of health care systems based on preventive services provided in the community by minimally trained local people. Such workers are backed up by a referral system to ensure that more complicated health needs are met by more skilled medical personnel. The World Health Organization (WHO) sanctioned such approaches in its 1978 Alma Ata conference calling for universal health coverage. Worldwide, similar systems are now proving their worth as an alternative to traditional health care systems that depend on well-equipped hospitals and an abundance of skilled doctors and nurses.

Before the volunteer initiative, residents of Dhaka's slums received virtually no outside assistance. Most of the severely ill eventually wound up at the hospital of the diarrhoea research centre here for treatment. "Government outreach services are virtually nonexistent in the cities of Bangladesh," says Dr. Abdullah Baqui, head of the research activities of the programme, which is managed by the diarrhoeal research centre. "Yet when you consider that nearly half Dhaka's population of seven million live in slums, you can imagine how acute the need is."

In fact, nearly half of all child deaths in Bangladesh are due to diarrhoea, which is why the designers of the Dhaka programme made prevention of the disease the main focus of community action. The infant mortality rate of Dhaka's slums is 150 per thousand live births — considerably higher than the national average of 116 per thousand. Since the main targets of the messages are women and children under five years old, the urban programme, like the rural one, sought to recruit as many women workers as possible.

"In our culture a woman can approach another woman better," says Dr. Aunjuman Ara, who is in charge of the programme's field activities. Nevertheless, she says getting community acceptance for women to work outside the home proved as difficult in the city as it was in the countryside. "In the beginning we had to take on a number of men volunteers," says Dr. Aunjuman, "but since then the men have been persuaded that the women are doing valuable community work."

Changing deep-rooted attitudes takes time. Even after eight years of working in the slums, some volunteers find resistance. "In Bangladesh, a woman's place is the home," says Dr. Aunjuman. "When they come out of their home, some local leaders see them as a power threat."

Shonabhan's main problem was not men, but getting women to accept her. "At first I'd feel like an intruder. Mothers simply did not want to listen to me," she recalls. "But I persevered, and

now when I pay visits, everybody greets me with a smile. And when they need ORS, they actually come and seek me out."

Shonabhan, who has received only three weeks of training herself, says she hopes the training she has provided in preparation of ORS and an alternative fluid, made of molasses sugar, salt and water, has saved some lives. She says she knows she has made some improvements in her neighbours' health. "There was a lot more scabies before," she says, "but now that people are washing more regularly it's going away."

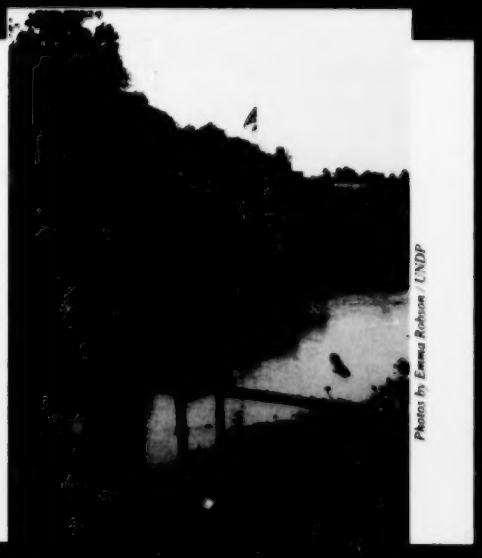
Diarrhoea appears to be less of a problem, too. A mid-1980s study recorded declines of more than one-fifth in the incidence of diarrhoea among those families assisted since 1981. A survey is underway to gauge more recent impacts. If the survey results are sufficiently positive, similar urban volunteer schemes may be launched with US government financing in Bangladesh's second and third largest cities, Chittagong and Khulna.

Dr. Ahmed Alam, head of the Centre's hospital in Dhaka, believes serious diarrhoea is becoming less prevalent throughout the city. The number of people treated at the hospital fell to below 60,000 in 1990, from 100,000 in 1980, a drop that he attributes partly to the work of the volunteers.

"It appears that most diarrhoea is getting treated at home now," says Dr. Alam. "What we see here are the more serious cases." In addition to the work of the volunteers, Bangladesh radio and television have promoted the use of ORS as part of a national immunization programme, which Dr. Alam believes has been effective in reaching women, the guardians of family health.

The Centre's rural community health programme near the village of Matlab, 60 kilometres south of Dhaka, has produced more persuasive evidence of the value of such preventive health care services. The programme area, which

In Dhaka's congested slums an average of more than 30 families share one water source.



These primitive toilets are the only form of sanitation available in Dhaka's slums.

Photos by Emma Robson / UNDP

Despite the presence of safe water, lack of drainage facilities is one of many factors contributing to disease in Dhaka's slums.

has a population of 100,000, boasts an infant mortality rate of 80 deaths per 1,000 live births, which is well below the national average. Its immunization coverage is 90 per cent compared with under 80 per cent nationally, and contraception is practiced by 68.5 per cent of women of child-bearing age, compared with 35 per cent nationally.

The Matlab programme, like its urban counterpart, relies on a network of female volunteers, recruited in each of the traditional extended family compounds, to act as the local contact person for community health workers. A total of 1,400 women volunteers, who are usually mothers, provide ORS, health messages and advice on family planning and child care to their neighbours. They and 500 traditional birth attendants are trained and supervised by 80 community health workers.

The Centre's rural health workers, who are paid the same rate as their government counterparts, visit each woman and her children every two weeks to track their health. They give women anti-tetanus injections and provide iron tablets to pregnant women. Children receive Vitamin A and are immunized against tuberculosis, diptheria, whooping cough, tetanus, polio and measles. The circumference of their upper arms is measured to gauge their nutritional status as a low-cost alternative to weighing. The health workers ensure that the volunteers' stocks of ORS are replenished regularly, and they refer all seriously ill patients and women with likely birth complications to one of three local treatment centres.

Dr. Mohammad Yunus, head of the Centre's activities at Matlab, terms the role played by women in the system invaluable. "Female health workers are best suited to providing services to women, because communication is easier and women tend to trust women more than they would men. It's obvious."

Apparently the concept is becoming more obvious to the Government of Bangladesh, too. Until the 1980s, it employed only male health workers. "More recently, the government has made efforts to employ women as well as men," says Dr. Yunus, "because it has found that while there is resistance to females working as health workers, many communities do not accept male health workers interacting with females either, especially to advise on family planning."

Given the sensitivities involved, the Matlab model demonstrates perceptive social psychology. Its extension workers are women serving mainly women, but they report to male health assistants who organize their visit schedules. The men's superior position reflects the accepted social hierarchy in Bangladesh. What they say is more likely to be accepted by other men, which makes them effective in counselling resistant husbands on family-planning matters. This smooths the way for women to achieve the end goal: fewer but healthier children. ■

UNDP's PROWWESS programme (Promotion of the Role of Women in Water and Environmental Sanitation Services), which gave training support to the Urban Volunteer Programme, has compiled a case study entitled, *Dhaka: Volunteers Against Diarrhoea*, which can be obtained free of charge by writing to:

UNDP (PROWWESS)
One United Nations Plaza
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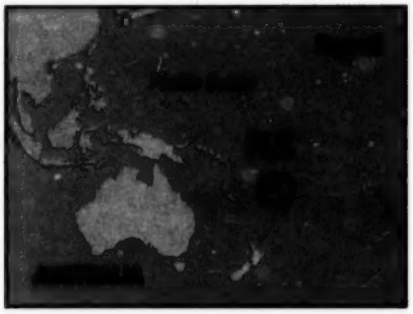
Mobilizing The Men In Fiji



By Mary Lynn Hanley

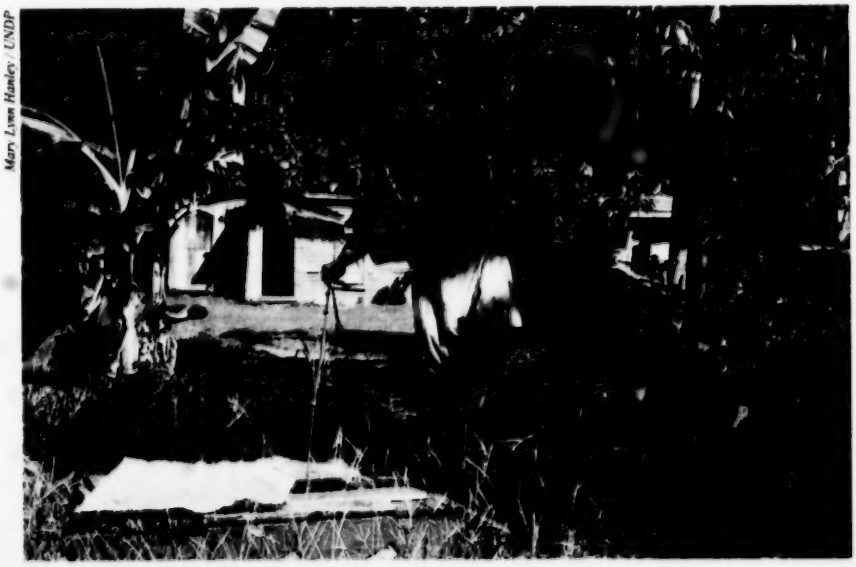
Solevu, Fiji — At mid-morning here on Malolo Levu island in the South Pacific, as the climbing sun casts a blanket of heat over this small fishing community, the thoughts of the men turn to *kava*, the traditional national beverage made with water and the pulverized roots of pepper plants. Spreading woven mats over the ground, they seek shade under the breadfruit trees and quench their thirst on the cloudy, grey and mildly narcotic liquid. Among those partaking is George Stephens, a Fijian community development officer whose wife was born on the island. As he sips, he casually turns the conversation to village needs, specifically the importance of repairing and maintaining their current water systems.

About two years ago, the 10-year-old gravity drinking water system installed by the government began to break down. The community approached the University of the South Pacific (USP) for help. A regional institution with 12 member countries, USP is well known in the South Pacific for its focus on "women and water."

But Solevu is a community where it was necessary to involve men as well as women in repairing the water system. Fixing the deteriorating systems would require heavy physical labour and skills such as cementing, normally found among men. Another consideration was the community's strong tradition of male decision-making, prevalent throughout the South Pacific. Men had plenty of time to devote to the

UN / DTCD

UN Volunteer Rick Knauth (left) works with village men preparing a well lining.



Mary Lynn Hanley / UNDP

A woman draws water from an old well in Solevu.

task at hand. Repair and maintenance activities could easily be fit within existing farming and fishing responsibilities.

But motivating the men to get involved was a challenge. "Water is a non-issue with Fijian men," says Cema Bolabola, a lecturer in continuing education at the USP Fiji Centre in Suva, the country's capital. "Men in Fijian villages are only interested in water when it comes to mixing their *kava*." It was therefore decided to bring in Mr. Stephens, who has a thorough knowledge of local conditions and a deep understanding of island traditions, such as the importance of the *kava* drinking ritual.

While a female community development worker conducted seminars on keeping water clean for Solevu's women, Mr. Stephens sat down with the men and spelled out the island's water problems, suggesting possible solutions. Then he left it to the men to decide what action they would take.

This approach took time, but it succeeded in stirring the men's interest in fixing the old water systems, which consist of a gravity-piped spring water system, wells that tap underground reserves, and rainwater catchment tanks. Soon the men were busy recementing worn out storage facilities, fitting wells with concrete aprons and tube-shaped casings and patching up eroded rainwater collection tanks. "The villagers will do what is necessary once set on the right path," says Mr. Stephens.

That path was blazed by Kerrick (Rick) Knauth, a UN Volunteer civil engineer attached to a Pacific islands water resources project. The project is supported by the United Nations Development Programme (UNDP) and the UN Department of Technical Co-operation for Development (UN/DTCD). Mr. Knauth added his technical expertise to Mr. Stephens' motivational work. Together with the community, they set three main tasks. One

Mary Lynn Hanley / UNDP

Community development officer George Stephens

UN / DTCD

The foundation block of the laundry begins to take shape.

was to improve the flow of the gravity-piped water system at source. Second was to cover nine shallow wells and fit them with handpumps. Thirdly, they would install a communal laundry.

Development of drinking water supplies for Fiji's 800,000 population has long been a major priority of the government. Recent annual investments of nearly US$500,000 have brought coverage to nearly 100 per cent in the 97 inhabited islands. But as is the case in Solevu, water systems installed years ago are showing signs of wear and tear. Moreover, climatic changes and population growth are likely to increase future water demands.

Years of forest fires and deforestation on Malolo Levu have reduced seepage of rainwater into the water table. "When we came here over 30 years ago, this place was covered with *noko noko*," recalls Mr. Stephens, referring to a type of evergreen tree which now grows only in sparse clumps on the gently sloping hillsides.

While the villagers of Solevu can do little in the short-term to improve underground water reserves, they can do much to raise the volume and quality of their other water supplies. Mr. Knauth taught the village men how to re-cement the main water storage tank. Under his direction they also cleared away sediment to improve the flow of spring water channels and sealed them off from outside pollution.

After consulting with the women, a communal laundry facility with six sinks was built in the middle of the village, again with the men doing the construction. "Before, women carried their washing almost a mile (1.6 kilometres) down to a sandy stretch of the coast," says Mr. Knauth. "Once wet, it was so heavy they would let it dry there for a day, then go back and get it."

Other activities included improving the village's shallow hand-dug wells, which were at risk of pollution and subject to possible collapse. Under the guidance of Mr. Knauth, the men dug the wells about half a metre deeper and fitted them with concrete linings for stability. To finish off, they were shown how to build concrete aprons around the well heads. "When they get to the apron stage, we leave," says Mr. Stephens. "There is a temptation to complete the job, but that's the villagers' responsibility."

The improved wells will be fitted with pumps to be supplied by a Fijian engineering company, Integrated Welding Industries. These pumps were tested and improved under an earlier project supported by UNDP, UN/DTCD, the USP Fiji Centre, the Australian Embassy, and the World YWCA. "The experts had recommended the Mark II pump," says Ms. Bolabola. "But getting it to Fiji was too expensive."

Besides installing well linings, the men of Solevu have learned how to patch up their large galvanized iron rainwater collection tanks. On one visit to Solevu Mr. Knauth showed a local plumber how to repair them and on his next visit he was delighted to find a tank nearly as good as new. The patch job cost less than $15, while a new galvanized tank would have cost over $200. "Just a little bit of knowledge and perseverance is all that is necessary," says Mr. Stephens.

Back under the breadfruit tree, Mr. Stephens patiently discusses the next steps to be taken with the village men. In what order should the wells be fitted with casings? What other rainwater storage tanks should be repaired? Never insisting, he quietly sets out the options, letting the group determine their own priorities. "When we're gone they'll sit and talk about it," he says, taking a sip of *kava*. Experience suggests that when the last drop of *kava* is gone, the talk will lead to action. ■

Central African Republic: Repairing the Past

By Mary Lynn Hanley

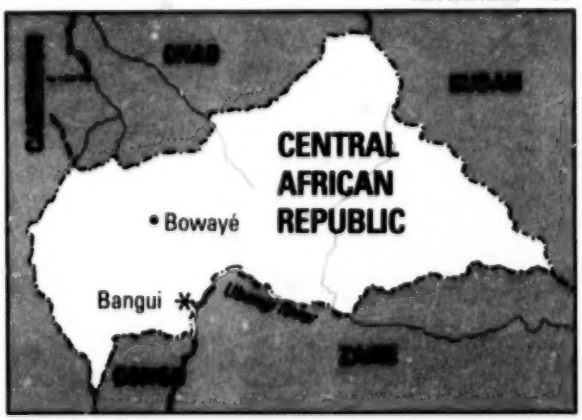
Mary Lynn Hanley / UNDP

Bowayé's Mark II pump is in much demand.

Bowayé, Central African Republic — On a sunny afternoon here, the village's new Mark II handpump is getting a vigorous workout. Women, children and young men line up with pans and buckets behind the pump, which is based on an Indian design. Many pause for a cool, refreshing drink before taking home their evening supplies. A fence surrounds the raised platform on which the pump is mounted, offering protection against pollution by wandering farm animals. One villager is Bowayé's pump caretaker. He has been trained in maintenance and repair and is paid by the community to keep the pump running smoothly.

The Central African Republic (CAR) launched its current "village hydraulics" programme in 1985 to bring safe drinking water to its rural residents, who make up more than half the total population of three million. Finding water in the CAR should not be a problem, since the country is well-endowed with underground water reserves. Yet earlier efforts to raise coverage by tapping underground water failed badly.

In the late 1970s, the government dispatched teams of foreign drillers to communities to sink boreholes without doing any geological studies or discussing plans with communities. They drilled more than 2,500 separate shallow boreholes but only one-fifth found water. One hundred were equipped with handpumps, but these soon broke down. The rest gradually became pol-



luted by the ropes and buckets used to draw water.

In the early 1980s, the European Development Fund entered the scene, funding the sinking of 300 wells in several regions. Most were not deep enough to withstand fluctuations in the water table and were abandoned by the villagers.

The country's present programme is intended to avoid a repetition of past technical errors by training government experts to make thorough assessments of conditions prior to drilling. Technical support for the drilling, from the UN Department of Technical Co-operation for Development (UN/DTCD) is funded by a grant of more than US$2 million from the United Nations Development Programme (UNDP).

To date, nearly 30 hydraulic engineers, hydrogeologists, geophysicists and driller-mechanics have been trained. "We are presently the only team in the country able to do the technical assessments which must precede drilling," says Walter Ziza, a geologist from Italy who provided part of the training.

Thanks to improved preparation, today's drillings based on the UN/DTCD studies find water more than 80 per cent of the time.

Over the past six years more than 1,000 boreholes have been drilled. "Most of these wells yield about 10 cubic metres of water per hour, which is excellent," says Mr. Ziza. With the help of UNDP and UN/DTCD, the government soon hopes to complete a master plan for village water supply, based on a countrywide survey to determine drinking water needs. For the government to meet its target of providing one pump or stand-pipe for every 300 people by the year 2000, the CAR must provide its villages with 5,000 more water sources. UNICEF, already responsible for half of the new boreholes, and UNDP and UN/DTCD all plan to keep on drilling.

This caretaker (pumping) is paid by the community to ensure that the pump keeps flowing and the surrounding area is clean.

There are also plans to extend community participation nationally, drawing lessons from Bowayé. The experience of working together to maintain the new water system has given the villagers the confidence and enthusiasm to tackle new projects together. Bowayé's new acquisitions include a chemist's shop, a shed for building materials and a manioc mill, purchased by the village's women's group. The villagers pay half the costs in cash and half with a loan from a revolving fund that they repay interest-free over three years.

With grants totalling $2.5 million from UNDP and the UN Capital Development Fund (UNCDF), more than 200 villages are launching similar income-generating activities, among which improvement of water supplies is a new option. Amadou Bocoum, a rural development specialist from Senegal in charge of UNCDF activities in the CAR, and Mr. Ziza plan to make cost-sharing by the communities a condition for water supply improvements too. Mr. Bocoum says groups should be able to afford to contribute a

Photos by Mary Lynn Hanley, UNDP

Walter Ziza, left, and Amadou Bocoum, right, attend a community meeting in Bowayé.

Above: This chemist's shop was built by villagers with a loan from a revolving fund.

Hawa Coswain, in pink turban, is head of Bowayé's women's group, which has bought a new manioc mill.

flat fee per year that would at least cover maintenance and repairs, if not additional water systems. "This would make people feel like owners," says Mr. Bocoum, "and ensure they look after their property."

While villages in the CAR are not usually asked to pay for water supply, it is a concept that could catch on. For one, Simon-Pierre N'Karamodé, president of the Bowayé village committee, has no objections. "I think that if UNDP only gives, there is the risk that people will be left with nothing once it leaves," he says. "Loans that have to be repaid are the best method of help." ■

David Kinley / UNDP

Lesotho's Women Take Charge of Sanitation and Water

By David Kinley

Ha Mafata, Lesotho — The mid-day sun is beating down under the cloudless blue skies that typify summer in Lesotho. Mamotebang Mohlanka is leaning on her shovel and mopping her brow as she takes a break from digging deep into the red clay earth.

"I am building my own pit latrine for privacy and for health reasons," says Ms. Mohlanka, a widowed resident of this small farming community in Berea district, 60 kilometres south of Maseru, the capital. "But my long-term goal is to make latrine construction a full-time occupation."

This is one of the first Ventilated Improved Pit (VIP) latrines to be built in Ha Mafata, where most people have traditionally relied on the bush to relieve themselves. The design provides an odour-and fly-free environment and is the product of many years of field testing sponsored by the United Nations Development Programme (UNDP) and the World Bank. The total cost is US$100, including labour and materials. And while $100 is a sizeable amount in a country with per capita income of $370, people throughout Lesotho are building VIPs largely at their own expense.

More than 900 local latrine builders have been trained thus far and roughly one-quarter of them are women. "Applying the community-based training approach, over 12,000 pit latrines have been constructed nationwide since 1983," says Sam Theko, director of Lesotho's National Rural Sanitation Programme.

Ms. Mohlanka will qualify for an official certificate as a VIP latrine builder only after she completes six demonstration latrines built to rigid specifications. She acquired her construction skills during a two-week training session organized by the government's sanitation authority. The programme itself sprung from a successful pilot latrine-building project in another part of the country that was organized by PROWWESS — Promotion of the Role of Women in Water and Environmental Sanitation Services — a UNDP initiative which develops leadership skills in women from poor communities.

Across the developing world, planners are recognizing the wisdom of putting women at the centre of water and sanitation improvements. In Lesotho, where over 40 per cent of the men of working age are employed in the mines of neighbouring South Africa, the government has little choice. Perhaps more than any country in Africa, Lesotho has turned to its women to meet the growing needs for adequate sanitation and safe water supplies in rural areas. Moreover, it has taken the lead in allowing private incentives to

Mamotebang Mohlanka stands just outside the safety fence surrounding the latrine pit she's just dug.

be the driving force for expanding services.

Health conditions in Lesotho today remain poor, especially in rural areas. Recent surveys reveal that little more than 20 per cent of rural households have sanitation facilities — generally pit latrines — of which one in four is of the improved VIP design. Only about 35 per cent of rural people have access to safe drinking water. While the country is free from most tropical diseases due to its high altitude, it has a high incidence of gastro-intestinal illnesses, low standards of domestic and personal hygiene and typhoid is endemic. Infant mortality exceeds 100 per thousand live births.

But in the past few years a lot has been done by the government and the communities themselves to improve well-being. In the village of Khotsi, a 15-minute drive from Ms. Mohlanka's village, at least two dozen women and children have gathered at the roadside site where a new borehole is being drilled by a government team funded by the United Nations Capital Development Fund (UNCDF). It is the second of two deep wells being installed here. Each one is being equipped with a rotary handpump that suits Lesotho's deep water table and is easy for communities to operate and maintain. The two pumps in Khotsi will serve over 150 people who are represented by an elected water committee.

"We used to rely on a small unprotected spring at the bottom of the hill for our drinking water," says Malebotsemang Moitheri, a farmer and mother of two who has been elected to the new seven-member village water committee. "That water was cloudy and full of insects. We were always getting stomach aches and fevers, especially the children."

But the days of carrying water up the steep hill are ending in Khotsi. With supervision from the government, villagers spent four months last year digging trenches for pipes which brought fresh spring water down from the mountains. Once the gravity water system was installed and a committee established to supervise its maintenance, the borehole drilling began.

"We have two volunteer caretakers who check on the handpumps and water taps on a daily basis," explains Ms. Moitheri. "And each household in Khotsi has contributed 10 Maloti ($4) to the maintenance fund."

The progress in Khotsi is not unique. Indeed, according to Mrs. Bernice Khoachele, a hydrogeologist working with the government's rural water supply programme, over 100 new deep wells are being installed in villages across Berea district. "Lesotho is geologically complicated, making the siting of water points difficult," she says. "The subsurface rock is very tough in many areas But now that we have

Over 2,500 boreholes are being drilled with the help of UNCDF.

Sam Thecko, right, directs Lesotho's rural sanitation project.

analysed the below-ground structures throughout Berea, we expect to install about 100 new wells in the next two months."

Officials in the capital have selected three different types of handpumps for use on the new boreholes, depending on local requirements. While most of the new rotary action pumps will have to be imported from the US, Canada and South Africa, at least a third of them are the "Maloti" pump, which are being assembled in Maseru. "We plan to install over 2,500 handpumps throughout the country in the next two years," says Eric de Boer, a Dutch hydrogeologist working with the UNDP/UNCDF-funded programme. "That, in combination with strong women's participation, will go a long way toward achieving the national goal of universal coverage in water supply and sanitation by the year 2000." ■

Below: Rotary handpumps that suit Lesotho's deep water table have been installed.

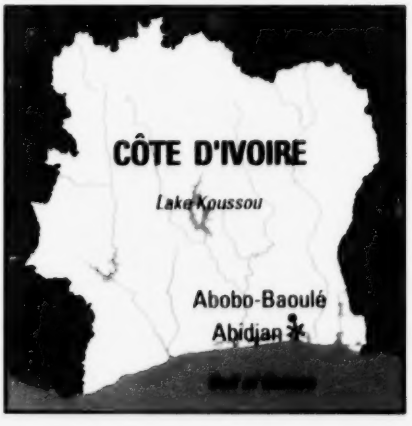
Photos by David Kinley / UNDP

Learning the ABCs of Pit Latrines in Côte d'Ivoire

By Emma Robson

Abobo-Baoulé, Côte d'Ivoire — Amid the din of playtime at Primary School One, children gather to quench their thirst at the tap in the schoolyard. One small boy takes a key and enters one of six newly built toilets. Moments later, he locks the door and places the key back on the desk of his teacher. Over the course of the 30-minute-long break, the doors open and close, reaching a peak just after the bell signalling a return to class.

Less than three years ago, the 370 children attending this school a few kilometres north of the capital, Abidjan, had nowhere but the bush to relieve themselves. The school was built more than 20 years ago, when Abobo-Baoulé was two villages separated from the capital by a vast expanse of wilderness. Back then there was no good reason for installing conveniences not found in the childrens' homes. Today, however, Abidjan has grown to absorb many villages like Abobo-Baoulé, whose population now stands at 500,000. And now each of the six forms at Primary School One has its own latrine, which the children's parents helped build under the guidance of a local government sanitation technician with funding from UNICEF.

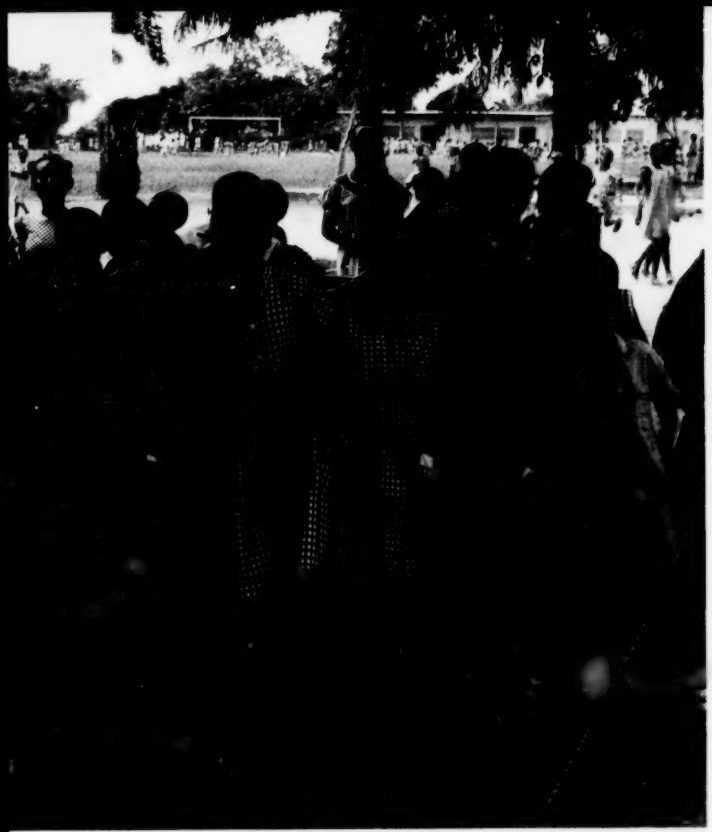


Together with the Ministry of Health and Social Protection, UNICEF is motivating schools all over Côte d'Ivoire to build latrines and introduce hygiene education into their daily lessons. The programme has been a big success in the Abidjan area, thanks to the enthusiastic support of teachers and parents.

"Not a day goes by without the conversation turning to hygiene," says Dominique Loba, a teacher who has encouraged his class to form groups which take turns in cleaning their latrine and sweeping the classroom and corridor. "Once a week we have a more formal chat about cleanliness and clean-up duties," he says.

Of the 36 children in the class, only two admit to having no latrine at home. "In the greater Abidjan area," says UNICEF programme officer Souleymane Diabaté, "you'll find neighbourhoods where everyone has latrines, and others where no one does. Our aim is to encourage everyone to want a latrine and also to use it."

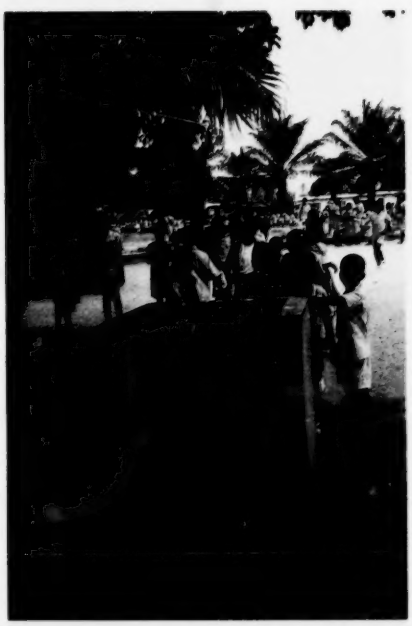
Promoting latrines is usually much easier in more densely populated areas than in rural areas, where there is more ample vegetation cover. While it's expected that latrines will improve peoples' health, they are often built to satisfy the need for privacy and safety.



A few years ago, the children of Primary School One had no running water or toilets.

Photos by Emma Robson / UNDP

Each form at Primary School One has a key to a toilet which the children keep clean.



During the morning break at Primary School One, children take a refreshing drink of water at their new tap.

According to Mr. Diabaté, there have been reports of children being killed near Abidjan while crossing railway lines to find a concealed place to crouch. And, says one nine-year-old at Primary School One, "toilets are useful because in the bush you can get bitten by snakes or hurt your feet." At Primary School One, fears of snakes and trains provide a framework of positive attitudes toward latrines on which the teachers are now building health messages.

Among most rural households, concerns of safety and privacy are often not sufficient to sway families in favour of investing their time and energy in building a family latrine. In this context, UNICEF is using installation of latrines at school to stimulate demand at home.

The more than 200 school latrines that the agency has helped install to date have already generated lots of requests from families for help in building private latrines. Many of the hygiene lessons learned in the classroom are being preached at home by children, who become teachers of their parents. "I think that if you can get children to tell their mother that she should wash her hands before cooking," says Mr. Loba, "it can be a useful way of teaching adults."

Mr. Diabaté agrees: "It seems to be an effective entry point for rural sanitation development and it is naturally helping children directly." Mr. Diabaté says that in the long-term, the hope is that children who use latrines at school and at home will benefit from better health and miss fewer days at school. ■

Conquering Cholera

By Emma Robson

Dhaka, Bangladesh — After hours of vomiting and diarrhoea, there is little life left in 25-year-old Altaf Sheikh. His pulse throbs feebly as he lies on a low cot, teeth chattering despite the 30°centigrade heat. *Suspected cholera* reads the report on a clipboard at the end of his bed.

Mr. Altaf was admitted to the hospital of the International Centre for Diarrhoeal Disease Research here at 10:30 a.m. with rapid breathing, sunken eyes and dry tongue — the classic symptoms of the kind of severe dehydration caused by cholera. In one night, Mr. Altaf had shed about eight kilogrammes, or nearly 15 per cent of his body weight. Now, his clammy arm is linked to a saline drip laced with tetracycline, a common antibiotic. As fluids flow back into his body, his skin, once draped loosely like leather over his bones, begins to regain its turgidity. In another four hours, Mr. Altaf will be back to normal. He'll walk with his mother-in-law, several kilos heavier, back to his tin-roofed shack in the Dhaka slums.

Cholera is a bacterium whose historical ability to ravage entire communities in mere days still evokes images of the Grim Reaper. Yet it is one of the simplest forms of diarrhoea to treat today. "If fate were to dictate that I must contract some form of diarrhoea," says Dr. Ahmed Alam, head of the hospital, "I'd pick cholera above all else."

Up to 90 per cent of cholera cases can be treated at home by administering correctly prepared oral rehydration solution (ORS) — a mixture of salts, sugar and clean water. The use of antibiotics, although not essential, can shorten the recovery period to less than 24 hours, says Dr. Alam. Fluids need only be given intravenously to severely dehydrated patients like Mr. Altaf.

However, cholera patients given no form of rehydration treatment have only a 50 per cent chance of survival. "Cholera is still fearsome because it can kill previously healthy people in less than 24 hours," says Dr. Bradley

Up to 90 per cent of cholera cases can be treated with oral rehydration solution, a mixture of salts, sugar and water.

Left: Altaf Sheikh lost nearly 15 per cent of his body weight in one night due to cholera.

Right: A baby suffering from diarrhoea at the International Centre for Diarrhoeal Disease Research in Dhaka.

Photos by Emma Robson / UNDP

Sack, Associate Director of the International Centre's Community Health division. "And the organism has the propensity to cause major epidemics," he adds.

Yet health experts estimate that of the five million or more diarrhoeal deaths that occur each year, cholera now accounts for no more than three per cent. The Centre's hospital claims a fatality rate of less than one per cent for its cholera patients, compared with four per cent for diarrhoea caused by bacillary dysentery, or shigella, and diarrhoeal cases complicated by other factors.

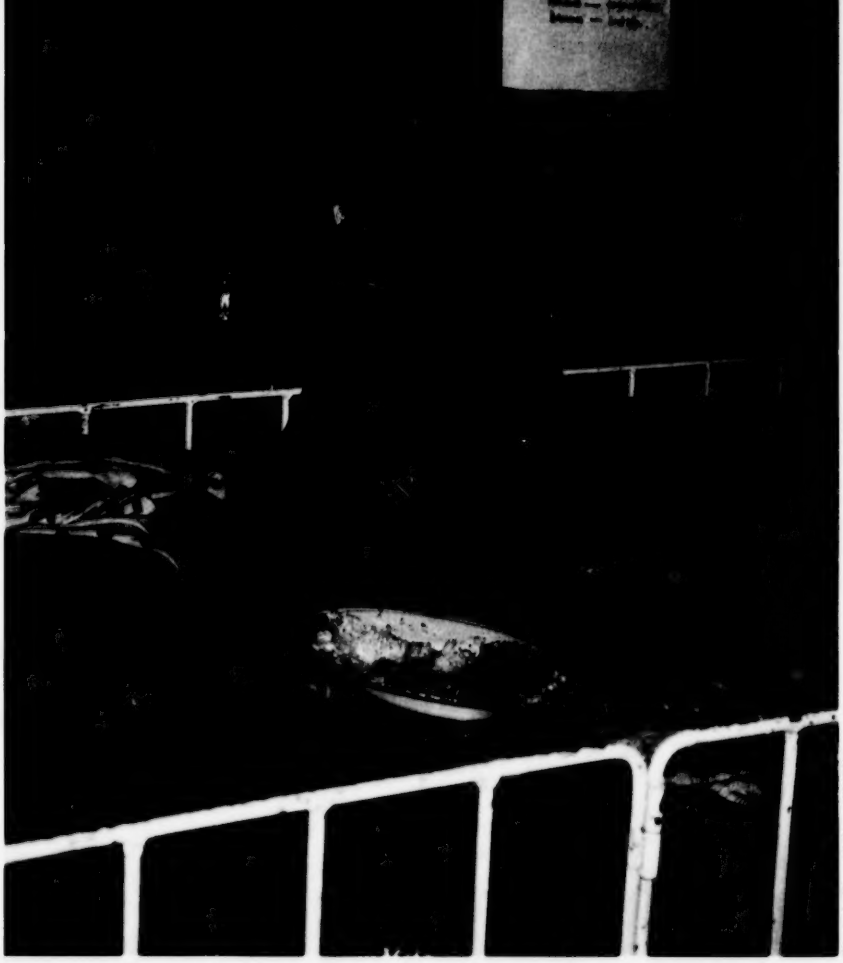
Until the late 1860s, cholera caused huge numbers of deaths in Europe and the United States. It was during the last epidemic in Europe, in London in 1867, that cholera was first linked to water, when Dr. John Snow traced the outbreak to one public drinking fountain. Given today's improved understanding of how to control such epidemics, the Grim Reaper is unlikely to stage such dramatic repeat performances. But the disease's recent return to the Americas and resurgence in other developing countries is raising international concern.

Reports of new cholera cases have flooded in to the World Health Organization (WHO) this year from at least 12 countries, giving rise to what WHO Director-General Dr. Hiroshi Nakajima terms "an emergency situation." Over 250,000 cases and more than 4,000 deaths were reported for the first six months of this year, surpassing the total number of cases for the whole of 1971, when the current wave of the disease, the world's seventh cholera pandemic or international epidemic, was at its peak in Africa and Asia. The current cholera pandemic, which began in 1961, is an unusually long one. During the 19th century there were six separate

pandemics which fizzled out to small pockets of cases, before resurging a few years later. Contaminated water and food play a major role in the transmission of cholera. It spreads rapidly in densely populated communities with poor sanitation and unsafe drinking water, which is why improvements in health service infrastructure and hygiene practices are essential if the disease is ever to be eradicated from the developing world. "Improvement of water supplies and sanitation is the ultimate solution to the problem," said Dr. Nakajima this April, on announcing the establishment of a Global Cholera Control Task Force.

If developing countries are to conquer cholera, more efforts will need to be directed also to health and hygiene education, public health experts say. Mr. Altaf believes his infection came from a café where he lunched the previous day on rice and lentils washed down with a glass of water. He admits another possible source, however. Twenty-four hours before being admitted to hospital he drank water in his own home that had been used to preserve cooked rice left over from supper. "We always use clean tube-well water," says Mr. Altaf, "but maybe it wasn't that fresh."

According to Dr. Bilqis Hoque, the Centre's environmental health specialist, the practice of drinking water used to preserve rice is common in Bangladesh and likely to be an important cause of diarrhoea. "Some people use old water or even surface water for keeping rice," says Dr. Hoque. "They don't realize this can introduce germs." Even if safe underground water is used, there is a risk of contamination if water is not properly stored once it is collected.



Photos by Emma Robson / UNDP

Diarrhoea patients must be encouraged to eat throughout their illness — with or without appetite — for diarrhoea leads to malnutrition.

More preventive education, therefore, and training specifically in use of oral rehydration therapy, are essential. Ignorance of the importance of giving fluids can lead to tremendous loss of life in emergency situations such as those found recently in post-war Iraq and in Bangladesh after its latest cyclone. "People must be made aware that if ORS packets are not available, any clean liquids will help," says Dr. Hoque. "If the only available water supplies are contaminated, water must be boiled or treated with chlorine or alum." Alum is a standard coagulant used in water treatment plants that purifies water by making contaminants clump together and fall to the bottom of a container.

In Bangladesh, data from the Centre's hospitals in Dhaka and its rural field station in Matlab suggest a decline in the incidence of cholera and serious diarrhoea over the last few years. The country has not experienced a large cholera epidemic since September 1974, when heavy rains swept away human excrement accumulated during months of drought and famine. In that one month, more than 2,650 cholera patients visited the Dhaka hospital, compared with 18 in September 1990.

Dr. Alam is at a loss to explain why cholera now accounts for only six per cent of all admissions. But he attributes a steady decline in overall diarrhoeal admissions to more widespread use of ORS and the great speed with which the country has extended water supply coverage during the last 10 years. ■

Prospects for a Vaccine against Cholera

At the Dhaka clinic children are vaccinated against measles and other childhood diseases.

While there is currently no effective vaccine against cholera, scientists are optimistic that within the next five years there will be one, if not two, effective oral vaccines on the market.

The only vaccine currently available is one that was first developed in the 1890s. Given by two injections, it was used throughout the first half of this century, but was deleted from the World Health Organization's International Health Regulations as a requirement for travel in endemic countries in 1973. Trials held in the 1960s and early 1970s in Bangladesh, by the International Centre for Diarrhoeal Disease Research, found that this vaccine offers a maximum of 50 per cent protection, and for only three to six months. According to Dr. Mohammad Yunus, who worked on the Bangladeshi trials, other disadvantages of the vaccine are that it is injected and therefore carries the risk of transmitting the viral diseases hepatitis and AIDS, and in some patients it produces feverish symptoms.

Two new oral vaccines, one based on dead elements of *Vibrio cholerae,* the disease-producing organism, one on genetically engineered live *Vibrio cholerae*, are now undergoing trials in humans. The "dead" vaccine is being developed at the University of Gothenberg in Sweden. Trials of this vaccine type conducted in Bangladesh in the late 1980s found it to offer at least 50 per cent protection for a minimum of three years. But protection varied greatly according to age and was disappointingly low in young children. This vaccine is given in several doses administered four to five weeks apart.

The "live" vaccine is being developed by scientists in the US, at the University of Maryland's School of Medicine in Baltimore. A recent trial among 77 US-based volunteers aged 18 to 35 showed it offers 100 per cent protection against severe diarrhoea and 80 per cent protection against mild outbreaks of cholera. Tests on children in Indonesia have confirmed it as a safe vaccine that solicits the desired immune response. After more than 10 years of research, it is now ready to be tested in larger field trials.

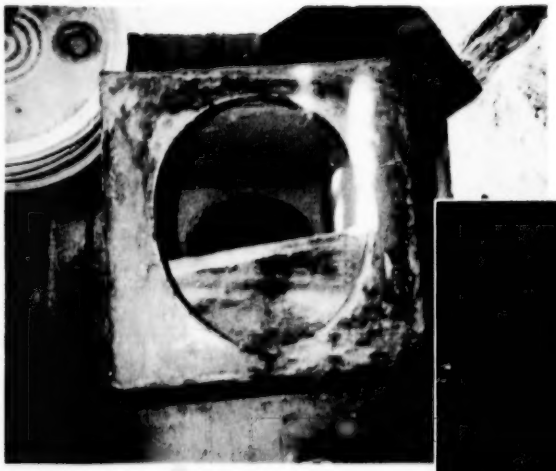
Dr. Nathaniel Pierce, a medical officer working on vaccine development for the WHO's Control of Diarrhoeal Diseases programme, believes prospects for both types of vaccine are promising. "I am cautiously optimistic that these vaccines will be developed into products that will have at least moderate efficacy within the next five years." According to Dr. Pierce, development of the "dead" vaccine is more advanced and could lead to commercial production within two years. He estimates the "live" vaccine will require a further five years of testing and research before hitting the market.

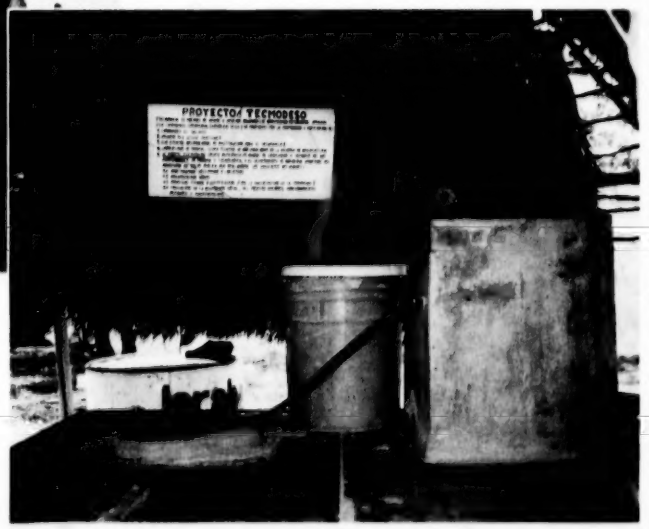
The "live" vaccine may be worth waiting for, however. Dr. James Kaper, a microbiologist working on the project in Baltimore, believes the US vaccine could offer advantages over the Swedish product that go beyond the superior efficacy already suggested. "Ours is a single dose, and may be cheaper because it does not contain a purified protein component that the other vaccine has," he says. Dr. Kaper cautions, however, that since only a few months have elapsed since the first human trials were carried out, it is not yet known how long the protection lasts. "We have reason to believe it may offer life-long protection, but we don't know."

Before either of these vaccine products enter commercial production they are likely to undergo further refinement, to enhance their value as public health tools. — **E.R.**

A Tale of Two Latrines

By Cherie Hart





Dry Family Fertilizer Latrine, the Winning Design

Inside each hole of a dry family fertilizer latrine is a concrete divider (above) which separates urine from solid waste. Urine is funneled into a tube (right) and mixed with water for use as fertilizer. In less than a year, the human solid waste that is collected in the concrete box (right) is also ready for use as fertilizer.

El Salado, Panama — One worked. The other did not. In field tests to find a low-cost latrine that could both fight disease and provide fertilizer to improve rural nutrition, a group of Panamanian researchers learned that simpler is often better.

Armed with a US$90,000 grant from the International Development Research Centre (IDRC) in Canada, the team set out in 1987 to find inexpensive means for improving environmental conditions in rural areas. The 12 architects, biologists and engineers from the Research Centre of the Faculty of Architecture (CEDIFA) at the University of Panama planned to evaluate the technical performance of two types of composting latrines.

With more than 500,000 rural Panamanians — nearly half of the rural population — lacking even rudimentary latrines, new economical sanitation facilities are crucial to the future of Panama's environmental health. "Outside of the cities, our rivers, creeks and ponds are at risk from contamination by human waste," says architect Hugo Navarro, Director of CEDIFA and principal investigator for the latrine project.

Although communities in the developing world may be aware of a relationship between contaminated water and waste-related diseases, they often lack effective technology to improve their health conditions. The team in Panama was determined to find economical answers. By the end of 1988, the first experimental dry family fertilizer latrine was constructed 120 kilometres west of Panama City in El

Left: In less than a year, the mixture of human solid waste and dry organic material is ready for use as a fertilizer.

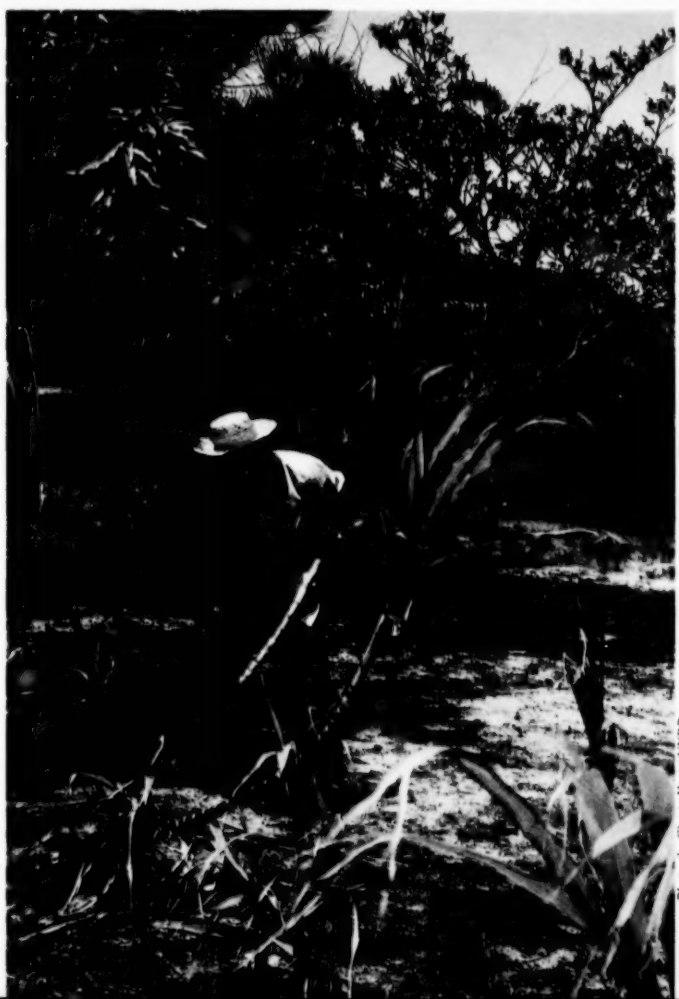
Below: Augustín Araúz uses the compost to grow sugar cane, tomatoes, peppers, beans and coffee.

Salado, a farming community of 100 people.

For Virgilia and Augustín Araúz, the low-cost latrine meant an immediate improvement in their health conditions. In addition, the fertilizer it produced brought an end to frequent hunger. "When we had no latrine for our eight children," says Mrs. Araúz, "the area around our house smelled very badly. Now, the smell is gone. We have used the first two batches of compost to grow tomatoes, peppers, beans, sugar cane and coffee. Now, my children no longer go hungry."

The dry family fertilizer latrine was initially developed under another IDRC grant to a Guatemalan non-governmental organization, which has installed more than 5,000 such latrines throughout Guatemala. In Panama, the latrine's simplicity and effectiveness won prompt support from the rural people. The entire unit can be built with cement, mud and grass for less than $100.

The base of the latrine consists of two one-cubic- metre concrete chambers each with a hole in the top. Atop one hole is a box on which the user sits. The hole in this box has a concrete divider positioned at an angle, which



Photos by Cherie Hart / UNDP

traps the urine and funnels it through a plastic hose into a storage container. Only solid human waste drops through to the chamber below. After each deposit of solid waste is made, the user places an equal amount of ash or dry organic soil into the chamber. All paper must be placed in a covered garbage can.

After five or six months, a family of six will fill up one of the two chambers. The hole is then covered with a cement top and sealed, and the seat is moved over the hole in the other chamber. In another five to six months, heat and evaporation eliminate all moisture in the first box. In a dry setting, pathogenic bacteria cannot survive. With the parasites and bacteria in the solid waste naturally eliminated, the contents of the first box is ready to be used as fertilizer. The urine, which has been collected separately, can be mixed with an equal amount of water and also used as fertilizer.

The Clivus Multrum latrine, developed nearly 60 years ago in Sweden, was also field-tested in Panama, but with less success. Under this system, solid and liquid human and organic waste, such as fruit and vegetable peelings, are deposited into a five-cubic-metre concrete box which is accessed by climbing up a set of stairs. Heat and evaporation inside the box eliminate liquids, parasites and infectious matter produced in the human waste.

Many of the communities proved less than perfect environments for such a latrine, which costs up to $450. Sixty per cent of the villages had humidity which exceeded 70 degrees — too high for evaporation of liquid which harbours disease. Some adaptations, such as a solar panel or a wood-burning stove attached to the concrete box, were tried in order to speed up evaporation. While these alterations sometimes made an improvement, the system had another flaw. It required much more organic waste than limited diets could provide. "The human factor was a big obstacle," says Mr. Navarro. "The families simply ate too little to deposit the necessary 1.4 kilogrammes of organic waste and an equal amount of human waste required each day for the system to work."

By the end of last year, the research team had thoroughly tested the two latrines and had determined the human and environmental conditions necessary to make each work in Panama. At a meeting of 70 national health directors and inspectors, they recommended national distribution of the dry family fertilizer latrine.

Even though one of the latrines proved largely unsuitable for Panama's environmental and social conditions, the team considers the project a success. After all, they did manage to find an ideal system that is both inexpensive and easy to use. In fact, construction of the dry compost latrine has already begun in several communities and a campaign to expand production is underway. ■

Fruit and vegetable peelings are deposited into the Clivus Multrum latrine.

A New Idea Blows in from a Troubled Wind Pump

A windmill which pumps water for irrigation was also tested by the University of Panama research team, with support from the IDRC grant. While the technology requires further fine-tuning, one community found an alternative use for it until the final glitches are ironed out.

The wind pump was built with US$350 worth of locally manufactured pipes, hoses, cables and vinyl cloth in El Salado, 120 kilometres west of Panama City. The device draws 10 cubic metres of water a day. When the wind exceeds 24 kilometres per hour, however, the pump works too quickly and sometimes overloads the pipe joints. Water then sprays uncontrollably in all directions from the pipe connections.

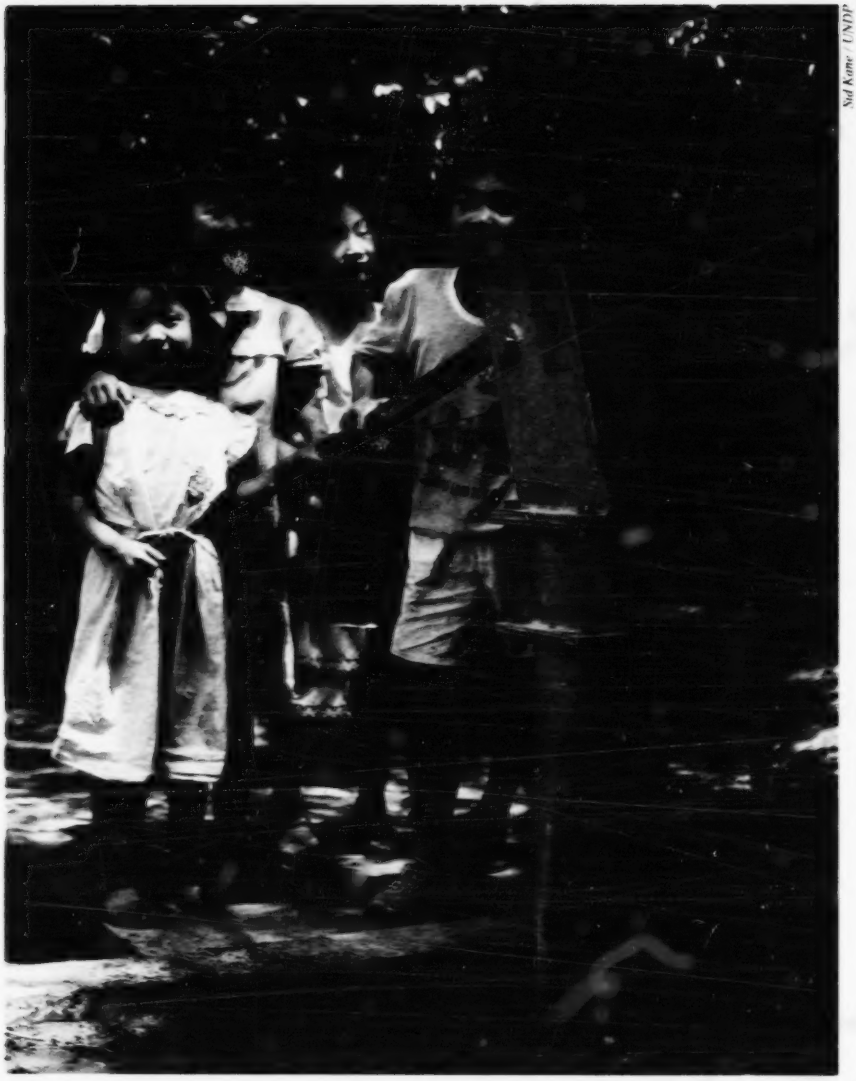
Until the research team devises a system of weights to slow the windmill blades in heavy winds, the amount of water pumped through the system cannot be properly regulated for irrigation purposes. Meanwhile, the community has put the wind pump to good use. It now pumps water from a local creek into a nearby pond which had gone dry. Farmers are raising fish in the replenished pond. "We used to depend almost entirely on rice," says José de Jesús Martinez, a local farmer. "Our families can now have plenty of fish from our new pond." —**C.H.**

A windmill which pumps water for irrigation was tested by a team from the University of Panama.

Photos by Cherie Hart / UNDP

Until the windmill is further fine-tuned for irrigation in El Salado, it is used to pump water into a new fish pond.

From the Collaborative Council



Sid Kane / UNDP

This low-cost handpump, developed under an earlier UNDP-World Bank project, is increasingly being adopted in rural areas.

More than nine million rural Chinese in six remote provinces are set to benefit from improved water supply and sanitation under a new World Bank project. According to the **UNDP-World Bank Water and Sanitation Programme**, which is providing technical support, the project is the first World Bank water sector loan specifically to target China's rural poor. It is also the first to promote low-cost technologies and to include rural sanitation and hygiene education. Previous borrowings have been for more traditional water and sanitation improvements in cities and towns.

The US$200 million project, of which the Government of China is investing $90 million, is to be backed by a $110 million soft loan from the Bank's International Development Association and will be managed by the provincial and county governments. Project plans call for partial cost-sharing by the beneficiaries, many of whom are low-income ethnic minorities. Activities are expected to start before the end of 1991.

Parallel to these activities, UNDP is launching a capacity-building initiative aimed at helping local government staff to manage the project and at staging demonstrations of water and sanitation improvements. Currently, less than 50 per cent of the population in the proposed project area has safe water supplies, and less than 10 per cent has adequate sanitary facilities.

Alexander (Sandy) Rotival will be stepping down as Chairman of the Water Supply and Sanitation Collaborative Council on 30 September 1991 upon his retirement from the United Nations Development Programme (UNDP). Mr. Rotival, who served 27 years with UNDP, set up the Council in 1989 as a means for donors and governments to keep alive sector concerns and accelerate progress beyond the International Drinking Water Supply and Sanitation Decade. Mr. Rotival will be working as a consultant on international development based at his home in Rolle, Switzerland.

The **Canadian International Development Agency (CIDA)** has granted US$4.4 million to the Canadian non-governmental organization CUSO and the Government of Nigeria to launch a three-year rural water, sanitation and hygiene education project in Ondo State starting September 1991. It is modelled on a similar CUSO project in Togo that combines water and sanitation improvements with community development.

Guinea worm stamps issued

Nigeria's government has issued a series of stamps as part of its campaign to eradicate the waterborne Guinea worm disease.

The **World Health Organization (WHO)** reports that 3.2 million children under five years old will die from diarrhoea in 1991. That's some 300,000 fewer deaths from this cause than in 1985, despite a rising world population.

Officials with the WHO's Control of Diarrhoeal Diseases Programme attribute the drop to improved surveillance systems in developing countries as well as to the success of the Programme in preventing severe dehydration from diarrhoea.

Without the Programme, whose main sponsors include WHO and UNDP, WHO estimates there would be 1.1 million more child deaths each year from diarrhoea.

More than 100 developing country governments are now working to control diarrhoea in collaboration with the Programme, which operates on an annual budget of just over US$12 million. ■

LOOKING AHEAD

Continued from page 2

various levels of community management. Mostly, they are undertaken by non-governmental organizations or well-trained government extension agents. Frequently they exceed targets, becoming what is often referred to as "entry points for development."

The question that follows is: all these successful developments were on a small scale, but can you scale up to a national level? This raises more issues: do you continue the same approaches, just more of them? Who is responsible for management of new broad-scale initiatives?

Our experience at PROWWESS is that when you try to move up the scale, you come up against a new set of challenges and the actors must also change. One of the four guiding principles of the September 1991 New Delhi Statement on reaching the goal of safe water by the year 2000 calls for "changes in procedures, attitudes and behaviour, and the full participation of women at all levels in sector institutions."

This is easier said than done. When you move to the national level, you inevitably run up against structural difficulties — legal barriers, centralized management structures, institutional inflexibilities. These barriers tend to erode or actually block community management, and in particular women's involvement. This is because women are often part of the informal, less visible portion of the society, with long-established lack of access to land, wealth, political influence, education and information.

To a certain extent, then, we are back at square one . The challenge 10 years ago was said to be that while there was a policy commitment to women's involvement, no one had any experience at field level on how it could be done. Now we have shown how it can be done, and we are back to the policies needed to expand on our success.

To truly take root, the advances gained during the last decade need to be followed up with even more energy. What is needed now are cost and benefit analyses and major assessments of new policy models, large-scale training in participatory approaches, and adaptation of approaches used at small scale to fit within larger-scale government programmes.

Collectively, such actions can be grouped into what is now often called "capacity building." Given enough funds and the necessary commitment, such assistance will lead to major institutional reforms, especially among governments used to a traditional top-down approach to development. The final result could be a societal shift in which participatory approaches that engage women at every stage — from village to ministerial level — will finally become a full reality. ■

FROM THE WORLD HEALTH ORGANIZATION

HEALTH EDUCATION IN THE CONTROL OF SCHISTOSOMIASIS
61 pages
Price: Sw.fr.11 for industrial countries
Sw.fr.7.70 for developing countries
Available from:
World Health Organization
Distribution and Sales
CH -1211 Geneva 27, Switzerland
or from:
WHO Publications
49 Sheridan Ave.
Albany, NY 12210, USA.
Tel: (518) 436 9686
(cheques, credit cards accepted)

This manual is aimed at raising peoples' awareness of the fact that human beings are largely responsible for the transmission of the parasitic water-borne disease schistosomiasis. It is suitable for health workers at all levels as a basis for short training programmes as well as self-instruction. It describes and illustrates ways in which health education can complement or be integrated into schistosomiasis control efforts. Detailed information about the parasite and the disease and methods of diagnosis and treatment are included in an annex.

THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE: REVIEW OF DECADE PROGRESS
135 pages
Available free of charge from:
CWS Unit, Division of Environmental Health
World Health Organization
CH-1211 Geneva 27, Switzerland.

This report distills information collected by WHO and UNDP field offices worldwide to provide a summary of the status of water supply and sanitation services in developing countries in 1988. Based on a large sample of reporting countries, it describes trends regionally and globally. It also provides statistics on each reporting country, estimates costs of attaining full service coverage, and analyses constraints.

FROM THE UNDP-WORLD BANK WATER AND SANITATION PROGRAMME

WATER SUPPLY, SANITATION AND HYGIENE EDUCATION: REPORT OF A HEALTH IMPACT STUDY IN MIRZAPUR, BANGLADESH
By K.M.A. Aziz, B.A. Hoque, S.R.A.Huttly, K.M.Minnatullah, Z.Hasan, M.K.Patwary, M.M.Rahaman and S.Cairncross
91 pages
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1818 H Street, NW
Washington, DC 20433, USA.

This report documents the results of an unusually thorough attempt to assess the health impact of water supply and sanitation improvements. The study was conducted over four years in Mirzapur, Bangladesh, during which time 5,000 villagers were provided with handpumps, improved latrines and hygiene education. The results of those improvements were compared with a control village five kilometres away, which received no help other than some hygiene education provided by an independent group.

The improvements in the project area yielded significant results. By the end of the experiment, 90 per cent of households were using handpump water for almost all domestic purposes, compared to less than 20 per cent in the control area. Nearly all adults used latrines, while in the comparison area nearly one-fifth still used fields and bushes. The incidence of diarrhoea among children fell to three-quarters of that in the control area.

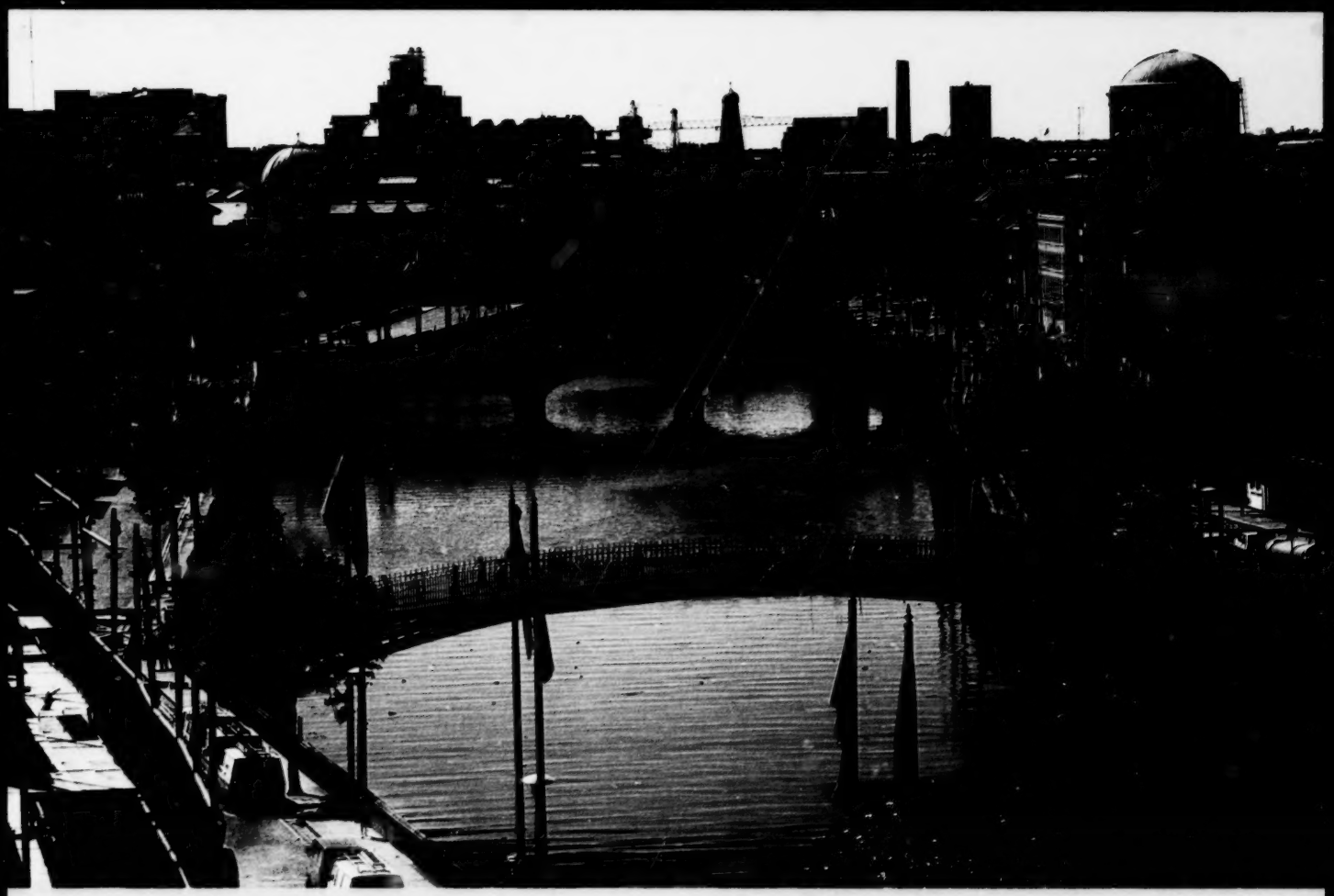
FROM OTHER SOURCES

WOMEN, WATER AND SANITATION
A Training Kit from INSTRAW

INSTRAW (United Nations International Research and Training Institute for the Advancement of Women) has produced an audio-visual training package designed to support a week-long seminar on involving women in water and sanitation development. The prime audience would be government officials and project managers. It consists of an instruction manual, transparencies showing text and diagrams, colour slides and audio-cassettes, and requires only a battery-operated overhead projector, a cassette-player and a wall for projecting images.
Its production was supported by the International Labour Organization and the UN Department of Technical Co-operation for Development. Its contents draw on the experience of many development organizations. Topics ranging from hygiene education to water resources management are covered in five modules, a format which allows trainers to tailor the material to the needs of target groups. Two of the modules come with 15-minute colour slide shows accompanied by audio cassettes. Also included is a guide that explains how to give an effective training session.
For further details contact:
INSTRAW
PO Box 21747
Santo Domingo, Dominican Republic.
Tel: (809) 685 2111. Fax: (809) 685 2117.

JOURNALS FROM IRC

The International Reference Centre on Water and Sanitation (IRC) is publishing three journals of papers on women, water and sanitation. Subscription to the three issues, the first of which is due for release in 1991, costs US$30.
For further details contact:
IRC
PO Box 93190
2509 AD The Hague
The Netherlands.
Tel: 70 3314133. Fax: 70 3814034.



Brian Lynch / Bord Failte Photo

Representatives from over 100 developing and developed countries and more than 50 external support agencies will meet in Dublin, Ireland for a six-day International Conference on Water and the Environment, to be hosted by the Irish government. Convened by the World Meteorological Organization, the conference is sponsored by over 20 agencies and bodies within the United Nations system, including the United Nations Development Programme (UNDP).

The Dublin conference is a preparatory meeting on water resource management for the United Nations Conference on Environment and Development, to be held in Brazil in June 1992. It will cover all aspects of water resources.

Participation is by special invitation to government officials, water and environmental specialists and external support agencies.

Dublin, Ireland
26-31 January 1992

For further information contact:

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International Conference on Water and the Environment

COURTESY OF UNITED NATIONS
DEVELOPMENT PROGRAMME